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## **SEISMIC consortium secures EUR 23.5 million IHI grant to pioneer next-generation minimally invasive brain treatments**

- *Co-funded by the EU's Innovative Health Initiative (IHI), the research consortium will combine advanced medical imaging and minimally invasive techniques to transform treatment of bleedings and tumors in the brain.*
- *Five-year research program with total budget of EUR 38.4 million includes eight clinical studies to validate technical solutions for minimally invasive neurosurgery*

**Delft, The Netherlands** – Oldelft Ultrasound today announced that the SEISMIC research consortium has been awarded funding from the [Innovative Health Initiative](#) (IHI) to transform neurosurgery through the seamless integration of minimally invasive surgical techniques and advanced imaging technologies. The EUR 23.5 million public funding will be complemented by EUR 14.9 million in in-kind contributions and additional resources from industry partners, supporting a five-year research and innovation program that also includes eight clinical studies.

Oldelft will develop an advanced 4D ultrasound probe designed to visualize the brain during cryoablation treatment of brain tumors. The probe will be optimized for minimally invasive procedures, enabling real-time imaging guidance in a clinical setting. Within the SEIMIC project, Oldelft will lead the probe development and work closely with US4US to integrate the technology into the overall imaging system. Erasmus MC will contribute expertise in imaging and clinical workflow, with the ultimate goal of testing the probe in a clinical environment during the course of the project.

*“Creating tomorrow’s ultrasound products for better healthcare”*

### **Innovation through public-private partnership**

The SEISMIC public-private partnership comprises nine medical technology industry partners, two patient organizations and seven academic partners:

- Industry partners: [Philips](#), [Oldelft Ultrasound](#), [DEMCON Curix](#), [Yaskawa](#), [us4us](#), [Caresyntax](#), [Surgical Science](#), [Boston Scientific](#), and [Bracco](#).
- Patient organizations: [Fundacio Ictus](#) (stroke) and [Cancer Patients Europe](#).
- Academic partners: [Erasmus MC](#), [Erasmus University Rotterdam](#), University Medical Center Utrecht ([UMCU](#)), Radboud University Medical Center ([Radboudumc](#)), [Hospital Clinic Barcelona](#) (including [IDIBAPS](#)), [Vall d'Hebron University Hospital](#), Vall d'Hebron Research Institute ([VHIR](#)), and [University of Ljubljana](#).

### **The burden of neurological conditions and urgent minimally invasive treatment needs**

Neurological conditions, including severe conditions such as bleedings deep in the brain (hemorrhagic stroke), chronic bleedings between the skull and the brain (subdural hematoma) and brain tumors are a leading cause of ill health, disability, and overall disease burden globally [1]. Beyond health loss, neurological conditions drive substantial socioeconomic costs, from long-term care and healthcare expenditures to productivity loss and caregiver burden, intensified by population ageing.

While there have been significant advances in the field of neurosurgery, *minimally invasive* neurosurgical techniques continue to lag significantly behind other surgical disciplines. Current clinical procedures rely on large skull openings, optical and electromagnetic surgical navigation systems based on preoperative imaging, and fragmented intraoperative imaging, which disrupt

surgical workflows and compromise precision. The SEISMIC project seeks to transform these potentially high-risk neurosurgical procedures into safer, faster, and more accessible interventions.

SEISMIC will develop an integrated suite of technologies, including real-time surgical navigation that combines ultrasound guidance with live X-ray imaging, highly realistic simulation platforms for clinician training, and minimally invasive biopsy and treatment techniques. SEISMIC will focus on three neurological conditions in which surgery is critical to patient survival and quality of life: intracerebral hemorrhage (bleeding deep within the brain also known as a hemorrhagic stroke), subdural hematoma (bleeding between the skull and the brain), and brain tumors (where surgery is essential for both diagnosis and treatment).

- *Intracerebral hemorrhage*: SEISMIC will explore how real-time ultrasound and X-ray imaging can guide a minimally invasive drainage device through a small skull opening to precisely reach and evacuate deep intracerebral bleeding
- *Subdural hematoma*: The team will investigate a single, image-guided procedure that combines hematoma drainage with embolization of the middle meningeal artery. This approach is important because bleeding recurs in approximately 30% of patients after surgery, and occluding the artery may help prevent recurrence.
- *Brain tumor diagnosis*: This typically requires open brain surgery to obtain a tissue sample for analysis. To reduce the need for surgery, SEISMIC will explore whether diagnostic information can be obtained through minimally invasive, focused ultrasound-enhanced liquid biopsy.
- *Brain tumor treatment*: The team will assess the use of cryoablation—an approach that uses extreme cold to destroy tissue—for the treatment of brain tumors. While cryoablation is already used for other cancers, brain tumors are typically removed via open surgery. In this approach, a cryoablation probe would be introduced through a small skull opening and guided to the tumor using X-ray and ultrasound imaging.

By reducing procedure times, minimizing surgical trauma, and accelerating patient recovery, the SEISMIC project aims to improve clinical outcomes and expand access to specialized neurosurgical care for currently underserved populations.

The SEISMIC website will be live soon: [www.seismic-project.eu](http://www.seismic-project.eu). The CORDIS project page for SEISMIC can be accessed [here](#). The IHI factsheet for SEISMIC can be found [here](#).

## References

- [1] The Lancet Global Health: Global brain health—the time to act is now; [https://www.thelancet.com/journals/langlo/article/PIIS2214-109X\(23\)00602-2/fulltext](https://www.thelancet.com/journals/langlo/article/PIIS2214-109X(23)00602-2/fulltext). The Lancet Neurology: Global, regional, and national burden of disorders affecting the nervous system, 1990–2021: a systematic analysis for the Global Burden of Disease Study 2021; [https://www.thelancet.com/journals/laneur/article/PIIS1474-4422\(24\)00038-3/fulltext](https://www.thelancet.com/journals/laneur/article/PIIS1474-4422(24)00038-3/fulltext).

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**Oldelft is a Dutch medical technology company with a long-standing expertise in ultrasound innovation. The company develops and manufactures advanced ultrasound probes and imaging solutions, with a strong focus on transducer design and system integration. By combining deep**

**technical knowledge with high-quality engineering, Oldelft enables next-generation imaging technologies that support minimally invasive procedures and improve patient care.**

